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THE RUINS OF CENTRAL AMERICA.

PART IV.

OUR next field of labor was Tula, the ancient metropolis of the Toltecs, now a village of fifteen hundred inhabitants, situate about sixty-five miles to the north of the city of Mexico. We traveled by rail to Huehuetoca, and thence by diligence over execrable roads to our destination, some twenty-five miles from the latter place. I will here briefly recount the history of Tula as written by Clavigero, the only one of the Spanish historians of Mexico who possessed the critical faculty.

The Toltecs came from the north, bringing Asiatic traditions, and settled first at Tollantzinco, there tarrying only twenty years, and then definitively establishing themselves at Tollan or Tula, in the year 667. The Toltec empire lasted three hundred and eighty-four years, or till 1051. Here we are, therefore, in the capital of the most famous nation of Anahuac. A gentle race were the Toltecs, preferring the arts to war, and the nations that came later owed to them the culture of cotton, of maize, and of the different fruits grown on the high plateaus ; from them they learned the art of metallurgy and of cutting precious stones. Wherever we go we find memorials of them : to them is attributed the construction of the pyramids of Teotihuacan and of Cholula.

This interesting civilization perished as though by an earthquake : a series of calamities effaced the work of almost four centuries. First came a drought of several years' duration ; this was followed by a famine, and then came pestilence. A feeble remnant of the population only survived, and with these the chief Quetzalcoatl resolved to go in search of some more hospitable region. Leaving Cholula they journeyed southward along the shore of the Gulf and the coast of the Pacific, and settled in Yucatan, where we shall find them later.

What now remains to indicate the site of their ancient capital, Tula? A hill about one mile long by half a mile broad, covered with mounds, plateaus, and ruins of all kinds.

Some of the inhabitants of Tula have made collections of the antiquities of the place. Among these I would particularize a carved pearl shell representing a Toltec chief seated. This figure exactly corresponds with one of the figures of warriors among the bas-reliefs of Chichen-Itza, as reproduced by Stephens.

On the face of a rock just south of Tula are sculptured two figures of warriors which, in their head-gear, their ornaments, and their attitude, are identical with the warriors of Chichen-Itza. A stone ring to be seen in one of the streets is carved precisely like the ring at Chichen. In the plaza is the shaft of a column in two pieces, which were held together by tenon and mortice. The column was sculptured and covered with curved lines and palms. There are also in the plaza three caryatides of very hard basalt, each two metres eighteen centimetres in height. The upper half of these figures is wanting. Though rudely executed, they are not without artistic merit.

We began our excavations here on the 16th of August with a force of four men and two boys. The results of each successive day's work I will state as they are recorded in my journal.

On the first day the objects of use or ornament found by us were not of much importance, and none of them were perfect. Nevertheless, I consider myself singularly fortunate in having discovered a Toltec house answering to the description given to us by Torquemada in his account of Teotihuacan. As yet I can affirm nothing; still, from the remains brought to light, I can conjecture what kind of habitation it must have been. I set the men to work at one of the many mounds upon the ridge, and soon found that I had hit upon a group of habitations; further, as luck would have it, the progress of the work brought us to the portal of the habitation.

When writing about Teotihuacan I said that all the dwellings of the upper class of the population were united together in groups, and erected in isolated mounds, one in the middle, the others round about, the whole forming a sort of honeycomb with its cells placed at different elevations. Well, the Toltec habitation here at Tula was organized in the same way.

I am not in the least surprised at the fewness of the objects found, for it must be remembered that the Toltecs did not quit their country at the close of a war, or after a conquest, but in conse-

quence of a long series of misfortunes, and that they had time for collecting their portable goods—arms, utensils, ornaments. They left behind them only such of their goods as they could not carry away—their stone idols and the remains of their ancestors. It was an emigration in the strict sense of the term, and hence we find nothing of value, no objects that were in daily use, except fragments.

But we have seen the Indian in his inner life through the relics found at Tenenepanco and at Apatlatepiconco; we are now studying him in his dwellings: we shall complete our study by viewing his public life, into which we shall be initiated by an examination of his temples and his palaces. In short, we shall pass from the phalanstery to the citadel and the temple.

Among the objects found are thick red bricks of coarse clay; this is all the more curious because hitherto we have nowhere seen baked bricks employed. The outside of every wall is of stones of every kind—*tetzontli*, bowlders, fragments of basalt mixed with clay, with casings of different sorts, some of stone cut in the shape of bricks, the whole covered with a thick layer of lime or white stucco. The floor is covered with cement two inches in thickness, very hard, and painted red. In sundry places where we have dug we have found this layer of cement, which the builders employed not only for the floor of the houses and the pavements of the courts, but also for the streets of their cities and the highways. All this reminds us of Teotihuacan, and of the great road leading from Tihoo to Cozumel at the time of the conquest.

We find also great masses of baked clay, the original form of which it is difficult to conjecture. But the most singular thing found is some charcoal incased in baked clay. What could have been the use for this we are at a loss to determine.

August 17th.—I have found out the use of the bricks. These bricks, which are very hard, are from ten to twelve inches long by from five to five and a half inches wide and one to two inches in thickness. They were used for the steps of the stairways, and were there covered with a coat of cement; they were also used in the pilasters, of which we have discovered three, and in some walls.

Usually each people, according to its origin, build of bricks, of stones, or of wood; of clay mixed with stones; or of sun-dried bricks. But here at Tula we are face to face with an eclectic people, and this is not the least interesting circumstance connected with them. To judge from the great dwelling, or group of dwell-

ings, now being explored, the Toltecs employed all these materials simultaneously. They used clay and mud for the inside of the walls ; cement to coat them, cement also for their roads and for their floors ; dressed stone and brick for casings ; brick and stone for stairways ; brick for pilasters ; and wood for roofing the edifice. I find every reason for inferring that the houses had flat roofs consisting of timbers coated with cement. Of such timbers we find vast quantities. The Toltec roof was the *azotea* of the present day. Hence the builders of Tula differed in many points from the people of Palenque and of Yucatan, who built entirely of stone and mortar. But that does not in the least go to prove that the civilization of the more southern peoples was not derived from the more northern. We have had ten men at work to-day ; to-morrow we shall have fifteen, and thereafter twenty.

August 18th. — So far we have discovered twelve chambers. Among the objects found to-day are two fragments of cut stone, one representing an animal, the other being an architectural ornament that is very common in Yucatan ; then, there are several pieces of baked clay, ranging from the coarsest sort of brick to the finest glazed pottery. Among these fragments are some which must have belonged to enormous vases.

As I have said, the Toltecs were eclectic. Not only did they employ all sorts of materials in their buildings—clay, stone, bricks, and timber—they were eclectic also in their architecture, which as yet is quite incomprehensible to me. The apartments that have been brought to light comprise a number of chambers, big and little, placed at different heights. We shall have no clear idea of the relation of these different chambers to one another, or of the mode of access to them through the labyrinthine passages and the numerous stairways, until the whole edifice has been unearthed.

There is a very wide difference indeed between the arrangement of the chambers and the whole architecture here and the simple architecture of the palaces and other edifices of Yucatan. But the ornamentation is in many instances the same in both ; as for the facial types, the vesture, and the head-gear of the warriors, they are absolutely identical ; and the difference of race will account for any dissimilarities.

Among our finds I must not fail to mention sundry fragments of the casing of the inner walls, all covered with figures, either in white or in red on a black ground. I have had them photographed ; they show great variety of composition. We collected a few orna-



IDOLS FOUND AT SAN JUAN DE TEOTIHUACAN.

ments, also some animal remains, viz., some ribs (probably of the roebuck, though on this point I will not be positive, not being a zoologist), some small scapulas, two teeth, and, stranger still, two enormous humeruses, much larger than the humerus of the ox; both of these bones are broken longitudinally, as though to take out the marrow. We found also the radius of an animal considerably larger than a horse. Whence these bones? It is generally agreed that previous to the conquest there were neither oxen nor horses in America.

August 19th.—A good deal of work to-day, with poor results. We have now twenty men, and in a day or two we shall have completed our researches at this spot. I can not yet comprehend the architecture of our friends the Toltecs. I am fairly puzzled; it may be that this habitation is the most complicated of them all. Our finds comprise only bones of the same species as those found yesterday. In going about among the ruins I came across two stones, one of them cut in the form of a vase with a cross on one side; the other flat, with a double cross (†), and certain ornamental figures. I also found a small cross of terra-cotta.

August 20th.—Work still goes on at the Toltec house. Our finds comprise some curious fragments—a mold, a stamp, a flint ornament, and a number of obsidian arrow-heads and knives. I am beginning to understand the distribution of the apartments in this building. We shall eventually comprehend the entire plan. I detailed a party of five men to dig at the site of a small temple or oratorio, but no result has yet been obtained.

In another edifice there were found some bones, among them a gigantic tibia of a ruminant, with the perinæum attached. Could this animal have been a bison?

August 21st.—To-day I set a force of laborers at work on a small mound supposed to contain an oratorio. But we found only a very plain platter and several pieces of cut stone. It seems evident that, tradition to the contrary notwithstanding, the buildings must have been overturned, for not a wall of the oratorio was standing.

While watching my men, I measured the pyramids. The first measures nearly one hundred and ninety-six feet on each front at the base, and it is forty-six feet in height above the esplanade on which it stands. The second, which lies north of the first, is only one hundred and thirty-one feet wide and thirty-six feet high above the esplanade.

We found again to-day bones of large ruminants—a radius thirteen inches long and 3·7 inches in diameter, and teeth from 1·5 to 1·8 inch in length. Here are the remains of unknown animals, probably of mammoth bisons, domesticated by the Toltecs, at least used by them for food. This is in contradiction of history, which affirms that the Indians had no large domestic animals. Now, would a people, after once domesticating an animal, suffer the race to die out?

But the most remarkable find of all is certain pieces of coarse delf with a blue figure on white ground, and again, pieces of fine porcelain with the same figure and the same ground. Here is a discovery that revolutionizes our notions of ancient America. No one had ever before heard of delf or of porcelain existing among the Indians of America. Did the Toltecs manufacture such wares? Or were these relics brought by them from their original home in Asia?

At another point where I had four men at work we found the remains of a human body, but the skull alone was in a condition to be added to my collection.

August 23d.—To-day we made a cast of a great bas-relief sculptured on the face of a rock near the village. I expect to complete the excavations to-morrow; we will then sketch the plan, and will endeavor to explain all the details.

August 24th.—We are continually meeting with enigmas amid these ruins. To-day I discovered a sheep's head in terra-cotta! I also found the other extremity of the mammoth humerus before mentioned, and several other bones which I could not identify.

In writing of Teotihuacan I mentioned my having found, among certain little masks of terra-cotta, figures of negroes, of Chinese, and of Japanese. I also spoke of a figure resembling the Venus of Milo; and now I find at Tula a *mold*, of which I have made a cast in stearine, which shows a European figure with the hair arranged in modern style and crowned with a braid of false hair! In some of the private collections here I have noticed all sorts of types, and I have some myself which are simply extraordinary.

August 25th.—We sometimes go far abroad in search of an explanation that stares us in the face at home. I have just met in the plaza the perfect type of the head with braided hair which yesterday I compared with the European type. Indeed, we find all types blended in Mexico. I have often seen Indians of pure blood with blue eyes.

Another find of some importance made to-day is one of the three feet of a cup (*molcazete*), covered with the remains of its enamel. It belongs to the same class as the cups found at Tenenepanco, of which I have spoken so enthusiastically. The blue, black, green, and yellow painted on the pottery still remain, after being buried for a thousand years.

The excavations at the site of the oratorio have yielded no results of any moment, and will cease to-morrow. We will then begin to dig at the site of a temple. The rains interfere seriously with our labors.

On coming from their work, my men brought me the neck of a *glass vase*! It is iridized like all glass that has been buried for a long time in the ground. On this subject I make no comments, yet I will add that nations are like individuals: they always esteem themselves to be more highly civilized than their predecessors. The Chinese, the Hindoos, the Egyptians, have left to us evidences of their genius; they understood the making of glass and of porcelain, and many other arts before we did, and to me, it is no matter of surprise that an intelligent population such as the Toltecs should have been able to erect monuments, to cut stone, to make porcelain, to invent enamel, and to manufacture glass.

Before we have done with the ruins of the Toltec habitation, we must consider briefly the question, Whence came the objects found therein? Did they come from the inhabitants themselves, or do they belong to a later date?

In a well-ordered house, such as the great house in question must have been, the inmates would never allow the bones of the animals used for food to remain in the apartments; neither would they allow the fragments of pottery or the waste of the kitchen to accumulate. The poorest and the filthiest among the Indians throw their garbage outside of their huts, and of course the lordly proprietors of a palace could not do less. Hence the refuse found in these ruined apartments belonged to other populations, or else it was the accumulation of the last few days of the unfortunate inmates before they took their departure.

August 26th.—The day was spent in clearing the ground at the site of the temple, cutting down the trees.

August 27th, 28th.—I was in error in supposing this mound to be a pyramid, and that its purpose was to support a temple. On the first day of excavation here we brought to light four chambers, and I now find myself in presence of a Toltec habitation more im-

portant than the first one. I call this dwelling a palace, because it is much larger than the other one, stands on a pyramid, and has two wings inclosing a courtyard. The walls are thicker than those of the first habitation, and more strongly built. The apartments, too, are larger, though arranged in similar fashion. As in the other, we found here fragments of porcelain and of delf and glazed terracotta. The delf is plainly of Indian manufacture. Six other rooms were cleared of *débris* on the second day.

September 5th.—I have just returned from the city of Mexico, whither I went to defend an action at law brought against me by the owner of the ground on which the excavations were going forward. The difference was adjusted amicably. On my return I found the work well advanced, yet not so near completion as I expected. The building is very large, and about one half of it still remains to be uncovered. I have now thirty-five men at work. The objects found are comparatively few—broken pottery, carvings broken and worn, and *three pieces of cut stone forming an arch*. The arch is small, and would appear to have stood over a doorway. I found a piece of delf brilliantly colored in blue, yellow, green, etc.

We have cleared thirty apartments of various dimensions. I am beginning to think that the corridors were not roofed, but that they served to light this labyrinth of chambers.

September 6th, 7th.—We have discovered a spiral stairway leading from the lower apartments to the upper ones. This stairway is of cut stone, and is well preserved.

September 8th.—Five men were added to-day to the force at work, making the number now employed forty. There is an enormous amount of work done and yet to be done, and the plan of this dwelling, which I will draw when the excavation is completed, will show what a magnificent edifice I have discovered. The fame of our discoveries has gone out, and we are overrun with visitors, each one desirous of taking away some memento. I am compelled to be very stern in my dealings with these people.

September 9th.—Still the same objects found—broken idols, fragments of delf, a stamp, and a piece of terra-cotta, with ornaments that are strictly Indian in character.

As I said in the note prefixed to the first of this series of papers, they are simply the impression of each day—an impression that is subject to modification at any moment by some new “find.” Now to-day, though I am no zoölogist, I can not but recognize, among the many bones found in the progress of the work, jawbones of

swine, sheep, and, as I believe, of oxen and horses. Add to these pieces of plates of coarse delf—that can only have come from the Spaniards—and the inference is unavoidable that the latter inhabited the ruins of Tula in the early days of the conquest, and that they have left us, mixed with Indian mementos, the tokens of their presence here.

This in no wise lessens the interest attaching to these ruins, only we have to distinguish between the relics, and to render to each that which to each belongs.

In any event, the work we have done is an important one. The palace we have unearthed covers a surface of one hundred and sixty-five square feet, and we have had to excavate and carry to a considerable distance three or four thousand cubic yards of soil.

One thing that leads me to think that these edifices have been inhabited by others besides their builders is the fact that, on examining them closely, we discover modifications of the original plan—here a passage blocked, there an annex that seems to be at variance with the whole plan of the building.

The palace included at least forty-three apartments, large and small. In a few days I will draw the plan, and give the heights of the walls. It will be seen that these buildings at Tula are totally different from any before known.

On my return to the city of Mexico, Señor del Cartillo, Professor of Zoölogy in the School of Mines, on examining the bones of animals found at Tula, pronounced them to be the remains of *Bos Americanus*, horse, Andes sheep, llama, stag, etc., and *fossil*! If his judgment is confirmed by that of the *savants* of Paris and the Smithsonian Institution, a new horizon is opened for the history of man in America. My victory will then be complete, as I shall have brought to light a new people, and a city unique in its originality, and shall have opened to the learned a new branch of natural history. Surely this were enough to satisfy the most ambitious investigator.

DÉSIRÉ CHARNAY.